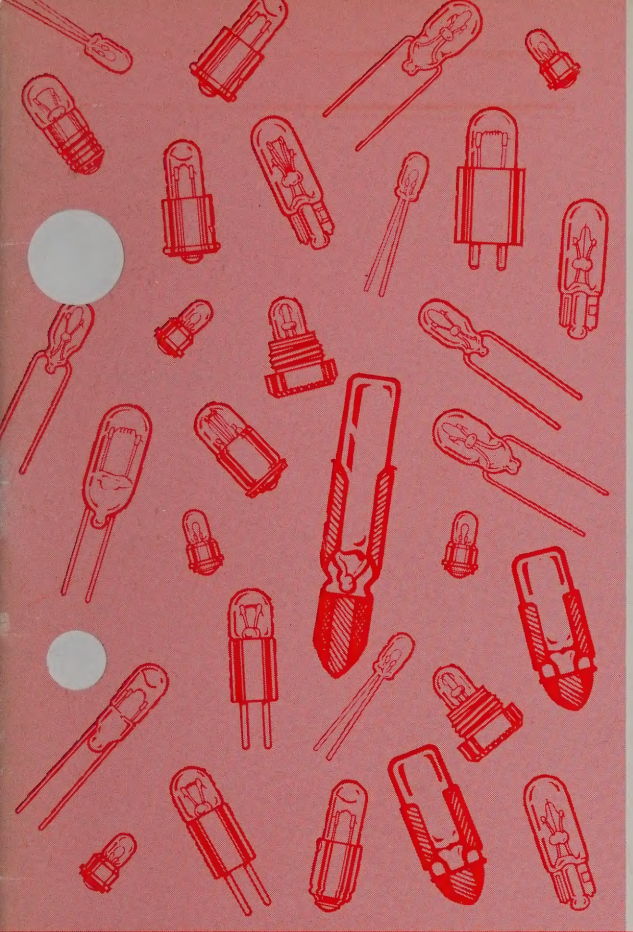

520
WEATHERLY
INDEX

Sub-Miniature
Catalog
3-6016

REVISED MAY, 1976
SUPERSEDES ISSUE
DATED FEB., 1975

SUB-MINIATURE LAMPS

1/4 IN. DIAMETER AND SMALLER

Other MINIATURE LAMP PRODUCTS DEPARTMENT CATALOGS INCLUDE:

- Sealed Beam Lamps, 3-5211
- Miniature Lamps, 3-5169
- Glow Lamps, 3-6022

MINIATURE LAMP PRODUCTS DEPARTMENT

GENERAL ELECTRIC

General Electric

Catalog of SUB-MINIATURE LAMPS

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For information on miniature, sealed beam, and glow lamps, refer to the appropriate catalog, listed by title and number on the front cover. For more information, please contact your local GE Miniature Lamp Salesman.

Important Notice

The data and recommendations in this catalog, as well as any additional information our representatives may furnish, are for general information only. They should not be taken as representations or warranties as to the suitability of any lamp for any particular application or use, or as to its performance under any particular conditions of use. Possible applications and conditions of use are many, and beyond our control.

Since new information is constantly being uncovered through research and testing, it is not possible to know at any given time all information with respect to a lamp or its performance. This is particularly true of newer lamps. It is, therefore, up to the purchaser to make his own determination as to the suitability of a product for his intended use and to assume the responsibility for that determination.

When any equipment design is involved, please communicate with your General Electric Lamp Representative for latest lamp design information.

T-2 CIRCUIT COMPONENT NEONS

Fig. 94 A

INITIAL DC BREAKDOWN V 5-50 FT.CD	INITIAL DC MAINTAINING VOLTAGE	DESIGN CURRENT (mA) NOM.	EXTERNAL RECOMMENDED RESISTANCE (OHMS)[1]	AVG. LIFE FOR CHANGE IN MAX. BDV OR MAINTAINING VOLTAGE				(M.O.L.) IN (mm)	WIRE TERMINAL LEAD LENGTH IN (mm)	PART NUMBER
				BREAKDOWN V		MAINTAINING V				
				CHANGE	HOURS	CHANGE	HOURS			
60-80	52-62	0.3	220 K			6.0	7,500	.5(12.7)	1.0(25.4)	2AA(NE-99)
65-80	AVG. >50	0.3	220 K	5.0	6,000	5.0	6,000	.75(19.1)	2.0(50.8)	3AD(NE-98)
60-90	AVG. >58	0.4	200 K	5.0	2,000	5.0	2,000	.75(19.1)	2.0(50.8)	3AG
65-73	64 MAX.	0.4	200 K	5.0	2,000	5.0	2,000	.75(19.1)	1.0(25.4)	3AG-F
120-150	60-80	0.5	150 K	10.0	3,000	10.0	3,000	2.23(56.6)	1.0(25.4)	4AB(NE-96)
60-90	AVG. 59	0.3	220 K	5.0	6,000	5.0	6,000	1.0(25.4)	1.0(25.4)	5AB(NE-23)
64-80	50-58	0.1	290 K	5.0	2,000	5.0	2,000	1.0(25.4)	1.0(25.4)	5AG(NE-81)
	50-60	0.3	220 K	5.0	2,000	5.0	2,000			
60-100	AVG. >59	5.0	15 K	5.0	5,000	5.0	5,000	.94(23.9)	1.0(25.4)	5AH(NE-83)
	AVG. >61	10.0	75 K	5.0	500	5.0	500			
60-85	50-65	5.0	15 K	5.0	5,000	5.0	5,000	.94(23.9)	1.0(25.4)	5AH-A
	52-67	10.0	7.5K	5.0	500	5.0	500			

NOTES:

1. Important — All neons require current limitation such as a resistor in series. Some neons have this resistance built into the base or attached to the leads. Failure to provide current limiting resistance will cause lamp damage and possibility of lamps to implode.
2. Voltages — higher than those shown in rating tables may be applied if proper current limiting resistors are used.

   AC/DC Operation — In DC operation, only the cathode (negative electrode) emits light. The BDV (Breakdown voltage) is 1.41 times higher than AC operation.

   Light Output — Varies in direct proportion to the current through the lamp. Light emitted by standard brightness lamps is approx. 60 millilumens per mA, while high brightness lamps average 150 millilumens per mA.

   Custom Manufacturing — Such options as attached resistors, lead length variations, insulated leads, etc. can be ordered. Please call for price and delivery schedule.
3. General — Neon indicator lamps are used to indicate power status in home appliances, audio systems, telephones, etc.

   Neon circuit component lamps are used to stabilize voltage, protect circuits, or as relaxation oscillators, timer circuits, etc. Some neons can be used as indicators as well as circuit components.
4. Tinned Leads.
5. High Brightness.
6. Dark Effect Reduced.
7. Resistor built-in base.
8. Center electrode connected to base shell.
9. Bulb Dia. .190-.250 inches.
10. Lamp to drop through a .310" dia. cylinder, .50" min. in length.
11. Formed tip.
12. Other built-in resistor valves available upon request.

www.microlamps.com

T-1¼ SUBMINIATURE NEONS
Approx. ⅝" (4 mm) diameter

VOLTS AC/DC	NOM. CURRENT (mA)	EXTERNAL RESISTANCE REQ'D. (OHMS)	LIFE (HOURS)	NOTES	Fig. 85 A WIRE TERMINAL
105-125	0.3	200K	20,000	1,4	B10A

T-2 MINIATURE NEONS
Approx. ¼" (6.35 mm) diameter

VOLTS AC/DC	NOM. CURRENT (mA)	EXTERNAL RESISTANCE REQ'D. (OHMS)	LIFE (HOURS)	NOTES	Fig. 86 B WIRE TERMINAL	Fig. 87 C MIDGET FLANGE	Fig. 88 D TELEPHONE SLIDE"
100-125	0.3	220K	25,000	1,2,4,11	A1B	A1G	
100-125	1.2	47K	25,000	1,2,4,5,6,11	A1C	A1H	
100-125	1.2	NONE	25,000	2,5,6,7,11,12		A1H-R47	
100-125	0.5	150K	25,000	1,2,4	A1A(NE-2)		
100-125	0.7	100K	25,000	1,2,6	A2B(NE-2N)		
100-125	1.9	30K	25,000	1,2,5,6,9	A3C(NE-2U)		
100-125	0.7	100K	25,000	1,2,4,6	A9A(NE-2E)		
100-125	0.7	100K	25,000	1,2,6	A9A-C(NE-2E1)	C7A(NE-2D)	
100-125	1.9	30K	25,000	1,2,4,5,6	C2A(NE-2H)	C9A(NE-2J)	K1A5(NE-84)
100-125	1.9	NONE	25,000	2,5,6,7,12		C9A-R30	120PSB(NE-30)
100-125	2.1	NONE	15,000	2,5,7,12			120PSB(NE-18)

T-3¼ MINIATURE NEONS
Approx. 13/32" (10.3 mm) diameter

VOLTS AC/DC	NOM. CURRENT (mA)	EXTERNAL RESISTANCE REQ'D. (OHMS)	LIFE (HOURS)	NOTES	Fig. 89 E MINIATURE BAYONET GLASS BULB	Fig. 90 F MINIATURE BAYONET PLASTIC CAP
105-125	0.3	220K	15,000	1,2	B1A(NE-51)	B1A-PL
105-125	1.2	47K	25,000	1,2,5,6	B2A(NE-51H)	B2A-PL
105-125	0.3	NONE	15,000	2,7,12		B1A-R220
105-125	1.2	NONE	25,000	2,5,7,6,12		B2A-R47

T-4½ INDICATOR NEONS
Approx. 9/16" (14.3 mm) diameter

VOLTS AC/DC	NOM. CURRENT (mA)	EXTERNAL RESISTANCE REQ'D. (OHMS)	LIFE (HOURS)	NOTES	Fig. 91 G CAND. SCREW	Fig. 92 H S.C. BAY	Fig. 93 I D.C. BAY
105-125	2.0	NONE	7,500	2,7	B7A(NE-45)		
105-125	2.0	NONE	5,000	2,7	F4A(NE-58)		
105-125	2.0	30K	7,500	1,2		B8A(NE-47)	B9A(NE-48)
105-125	2.0	30K	7,500	1,2,8		B6A(NE-21)	

Introduction and General Information

General Electric Sub-Miniature lamps are designed to meet extremely small size, extra long life and low cost requirements. They are available with a wide variety of filament constructions, bases and wire terminal leads.

Manufacturers and designers of equipment requiring sub-miniature lamps should select lamps of established design wherever possible for maximum economy as well as ease of replacement through regular trade channels.

Lamps are grouped in this catalog by bulb sizes. They are listed according to design volts in ascending order within the particular size group.

For easy reference, the "Numerical Index" section on page 27 lists lamps in sequence.

The Miniature Lamp Products Department of General Electric offers application engineering assistance to all customers in applying sub-miniature lamps in product design. Contact your local GE district office which is listed on the back cover page for additional and latest technical information.

LINE NUMBER

The line number is used to help find specific lamps. It is not of any technical or ordering significance.

LAMP NUMBER

Lamps are marked with General Electric identification and a trade number. The trade number is recorded with the American National Standards Institute and is uniform throughout industry. It completely identifies a lamp and is sufficient identification for ordering purposes. Wherever applicable, Federal Stock Numbers and/or Military Standards Numbers are shown in their respective columns next to the lamp number.

SPECIAL DESCRIPTION

This column provides description of unique features of the particular lamp: length of leads, whether tinned, bulb coating color, bead color, candlepower variations, etc.

DESIGN VOLTS

Design volts show the voltage at which a lamp is designed for rated ampere, candlepower and laboratory-life characteristics.

DESIGN AMPERES

Design amperes is the current flowing through a lamp when operated at its design voltage. It is subject to nominal manufacturing tolerances.

MEAN SPHERICAL CANDLEPOWER

The value shown in the candlepower column is the approximate initial mean-spherical-candlepower at design voltage. It is subject to manufacturing tolerances. Mean-spherical-candlepower is the generally accepted method of rating the total light output of miniature lamps. To convert mean-spherical-candlepower to lumens, multiply by 12.57 (4π).

LIGHT CENTER LENGTH

Light center length is the average measurement for which the lamp is designed and is subject to nominal manufacturing tolerances. It is measured from the geometric center of the light source to a particular point of the base. This point is shown below for the base types used in sub-miniature lamps:

Bi-Pin	— Bottom of Base
Flanged	— Top of flange
Grooved	— Center of groove
Screw	— End of bottom base contact
Wire Terminal	— Not specified

MAXIMUM OVER-ALL LENGTH

The dimension which includes both bulb and base is designated as the overall length of the lamp. For wire terminal lamps, this dimension applies only to the glass portion. The dimension figures listed here are maximum tolerance limits.

FIGURE NUMBER

The figure number corresponds to the lamp drawing which identifies the lamp with respect to the bulb size and base. Figure numbers appear in the last column of the lamp data on the lamp specifications page.

LAMP LIFE

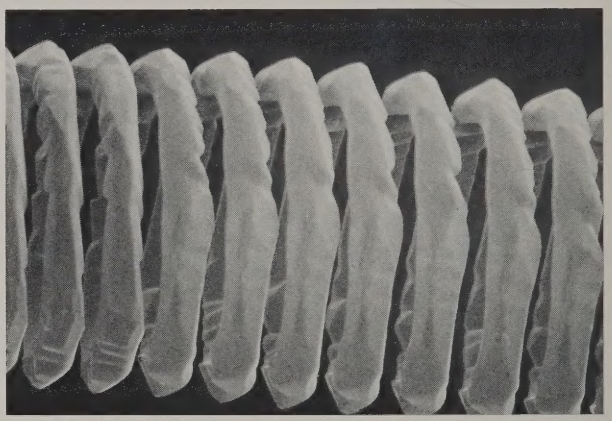
Rated average life is that obtained in closely controlled laboratory testing of lamps on 60 Hertz alternating current at their design voltage. Very long life lamps are generally rated on the basis of extrapolated laboratory test data. Service conditions such as shock, vibration, voltage fluctuations, temperature, etc., may contribute to a shorter average life.

Ordinarily, for still-rack operation, normal tungsten *filament evaporation* is the basic force or mechanism controlling incandescent lamp life. Where normal filament evaporation is the dominant failure mechanism, lamps should reach their design-predicted lifetimes.

In recent years another life-influencing lamp filament mechanism has become more prominent. This is commonly referred to as "*filament notching.*" Its prominence is due to at least three factors, primarily associated with sub-miniature type lamps:

1. Low temperature filament operation, less than that for significant normal tungsten evaporation. (Long life lamp designs, such as 10,000, 25,000, 50,000 and 100,000 hour designs. This does not apply to filament temperatures below 1600° C.)
2. Small filament wire sizes, less than one mil (.001") diameter in many cases.
3. Increased use of D.C. voltage operation (generally resulting from advances in solid state technology).

Notching is the appearance of step-like or sawtooth irregularities, appearing on all or part of the tungsten filament surface, after some burning. These notches reduce the filament wire diameter at various points. In some cases, especially in fine-wire diameter lamps, the notching is so severe as to almost penetrate the entire wire diameter. Thus accelerated spot evaporation due to this notching (as well as reduced filament strength), now becomes the dominant mechanism for influencing lamp life. Because of its abnormal evaporation and/or reduced strength effects, lamp lifetimes due to notching may be *one-half* or less of so-called ordinary or normal, predicted lamp lifetimes.



An example of filament notching.

Consider these factors...
when selecting Sub-miniature lamps

1 LIFE VS. LIGHT

For any particular lamp, the light output and life depend upon the voltage at which the lamp is operated. The desirable life of a sub-miniature lamp should be one which produces light most economically. The light output of a lamp varies directly as the applied voltage raised to the 3.6 power while life approximately varies inversely to the 12th power. Chart I (Page 6) illustrates the effect of overvoltage or undervoltage applied to a lamp on its current, life and light (candlepower) output. These characteristics will vary in each application. Consult your local GE Miniature Lamp Representative for technical assistance.

The data (particularly for lamp life) does not apply accurately for lamp operation on half-wave rectified voltage, semi-conductor dimming devices, or constant current operation.

2 STRENGTH AND RELIABILITY

When strength and reliability are of primary importance, it is usually advantageous to use low voltage (6.3 volts or less) sub-miniature lamps. These types have a shorter filament of a larger diameter. Such a filament is inherently stronger because of its physical characteristics. Furthermore, the resonant frequencies of low voltage sub-miniature lamps are such that they may not be in the critical range.

High voltage lamps, in the 10 to 28 volt range, generally have lower resonant frequencies and a greater number of resonant points which result in a greater tendency for shorting between filament turns.

3 INRUSH CURRENT

The initial current through a filament is called the inrush current. Cold resistance of a filament is generally considered to be that of room temperature, while the hot resistance depends on the temperature of the filament which is a variable for different sizes of lamps. Inrush current can be approximately 12 times as great as the normal operating current. This maximum value is seldom reached because of the impedance in the circuit which reduces it. However, equipment designers should take both inrush current and resistance into consideration when choosing a sub-miniature lamp. Chart II (Page 6) displays the general range of inrush current versus time after voltage is applied to a cold lamp. *Inrush current can be reduced by applying a low value of pre-heat voltage.*

4 FLASHING AND PULSING

Sub-miniature lamps have been used successfully in flashing and pulsing circuits. In general, there is no sacrifice in life as long as the light output under the flashing or pulsing condition does not exceed that of the steady burning position.

5 COLOR TEMPERATURE

The radiation from tungsten filaments used in General Electric sub-miniature lamps is similar to that from a "black body" at specific temperatures. This can be determined approximately from Chart III (Page 6).

6 REDUNDANT SYSTEM PHILOSOPHY

Two-filament lamps with the filaments connected in parallel for additional reliability is not a new idea. These lamps have never become really popular because it was found that in many cases the second filament had failed by the time it was needed. Furthermore, unless the brightness difference was quite noticeable, the loss of the first filament may not be noticed. Experience indicates that as long as there is some brightness, the lamp probably will not be changed.

A more reliable system, however, would be to use two or more lamps, operating at the same time. Since they are physically separated from each other, it is easy to see when one has failed. Therefore, it would be replaced immediately and before the second lamp failed.

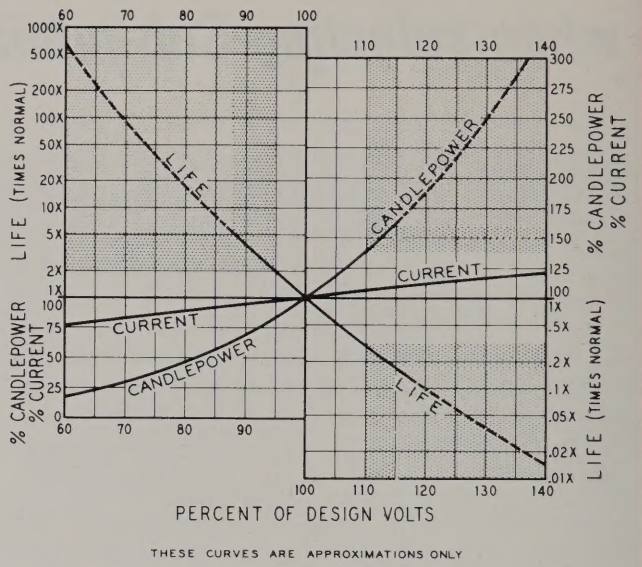
7 CLEANED AND SOLDERABLE LEADS

All-General Electric butt-seal, wire terminal lamps are now cleaned at the factory and furnished in an easily solderable state. This treatment makes the lamps easily solderable for a period of at least 6 months.

Lead wires used in the manufacture of butt-seal lamps have a borate-coating to insure a good metal-to-glass seal (where the lead wires enter the bulb). This coating interferes with soldering and must be removed where soldering is necessary. In applications where wire terminal lamps are connected by crimping or pressure contact, the cleaned and easily solderable leads eliminate the possibility of a poor connection.

CHART I

TYPICAL CHARACTERISTIC CURVES



THESE CURVES ARE APPROXIMATIONS ONLY

NOTE: Calculations of characteristics shown in Chart I are approximate only between 95% & 110% of rated voltage for lamp types with 5000 hours life or less. Certain lamps will vary widely from calculated values.

This chart will not apply to lamps with lives in excess of 5000 hours.

CHART II

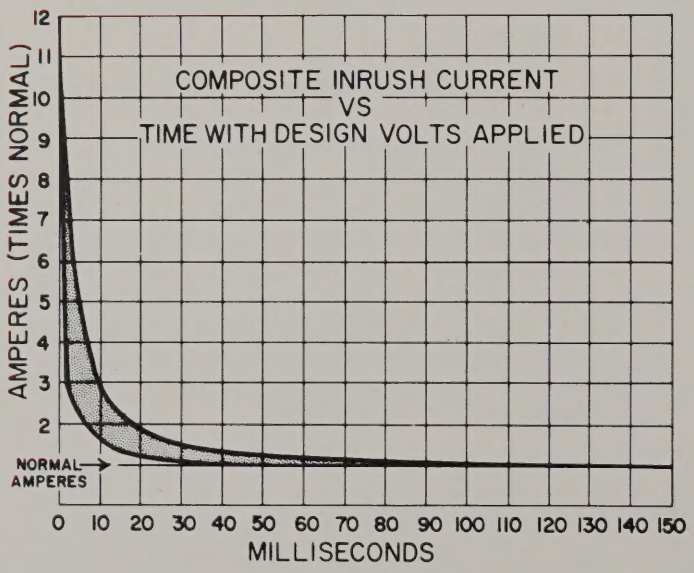
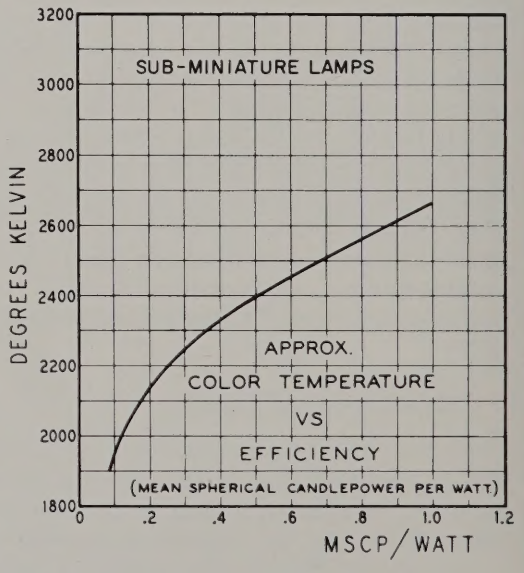


CHART III

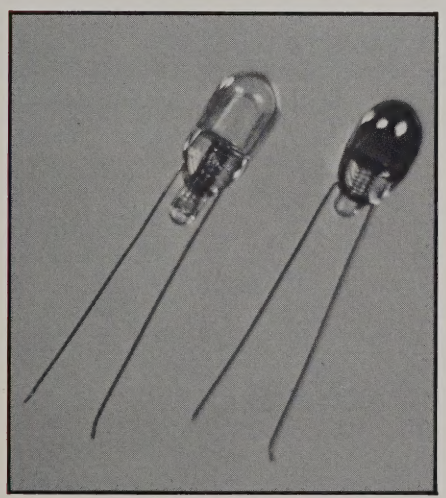


What is a Halogen-Cycle Lamp?

Very high light output from a very small package.

That's because GE halogen-cycle lamps are made with special high-temperature glass or quartz bulbs that can withstand the high temperatures generated by the required wattage. These same high temperatures are necessary to initiate and maintain the "cycling" of the lamps' halogen vapor, such as iodine. The vapor combines with particles of evaporated tungsten from the filament and redeposits the tungsten continuously back onto the filament...instead of the bulb wall. The results are a strong, long-lasting filament and the virtual elimination of bulb blackening.

A member of the long-established incandescent lamp family, GE halogen-cycle lamps are available in miniature (⅜ and ½ inch diameter) and subminiature (3/16 and ¼ inch diameter) bulb sizes, as well as in sealed beams. A typical miniature halogen-cycle lamp rated at 62 watts produces as much light as a familiar 60-watt household lamp. Yet the miniature halogen-cycle lamp is only 1/6 the size of the household lamp.



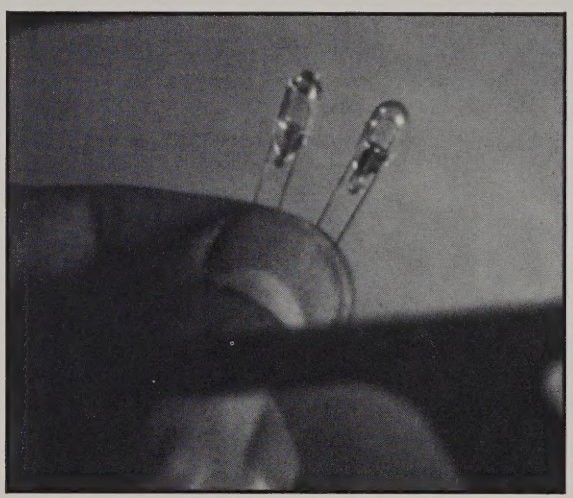
The lamp on the left is a halogen cycle lamp. On the right is a regular incandescent lamp.

Light that maintains its initial output level for virtually the life of the lamp.

A halogen-cycle lamp continues to produce 85 to 95% of its initial light output at least 70% of its life expectancy...and sometimes longer. That's a 50% improvement in total light emitted throughout life compared to conventional incandescent lamps. One reason: virtual elimination of bulb blackening due to recycling of tungsten particles to and from the filament.

Light that is highly efficient.

In addition to their self-cleaning, nonblackening characteristics, GE halogen-cycle lamps are made with filaments that are accurately positioned inside the bulb—consistently from bulb to bulb. High-temperature-glass types have uniform bulb tops, which further enhance light output efficiency, especially for optical system applications.



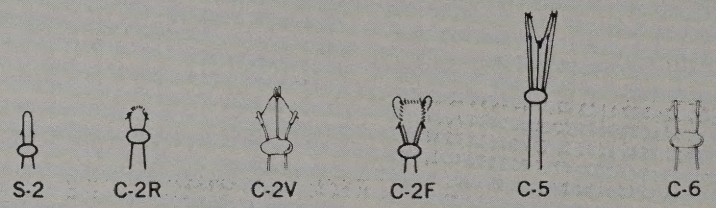
Halogen cycle lamps–note the uniform bulb tops.

Why use Halogen-Cycle lamps?

- For equipment miniaturization through smaller bulbs.
- For lower operating costs through lower electrical power requirements.
- For lower maintenance costs through longer bulb life.
- For better light efficiency through nonblackening bulb, accurate filament placement, and uniform bulb top.

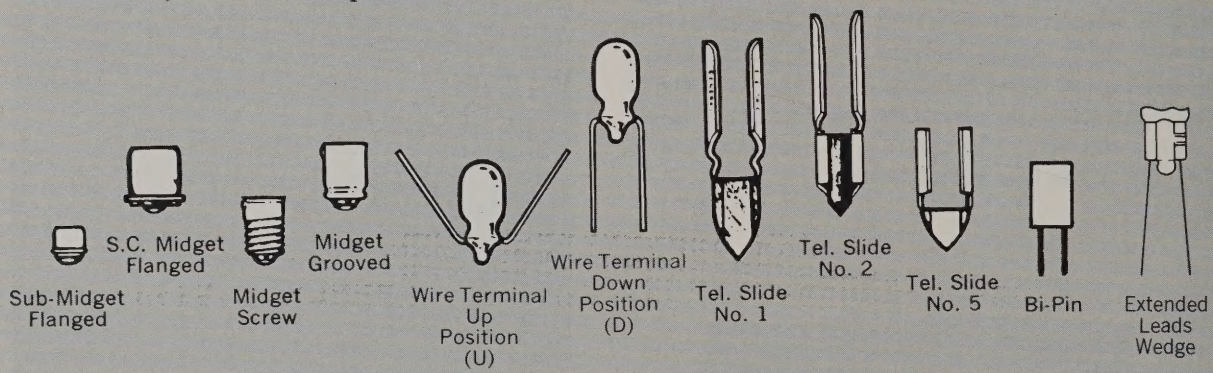
Filaments

The almost universally used lamp filament material is tungsten because of its high melting point, and structural strength at incandescence. The filament may be straight wire (S) or a coil (C). Coiling the wire effectively shortens the filament length so that smaller bulbs can be used. Filament designations consist of a prefix letter to indicate whether the wire is straight or coiled, and a number to indicate its physical configuration on the supports.



Bases

Bases provide electrical contact to the lamp and, in most cases, also support the lamp in the fixture. Based lamps have two advantages over wire terminal lamps: (1) replacement is easier, and (2) bases protect wire and seal contact area.



T-1 Line

APPROX. 1/8 IN. DIAMETER

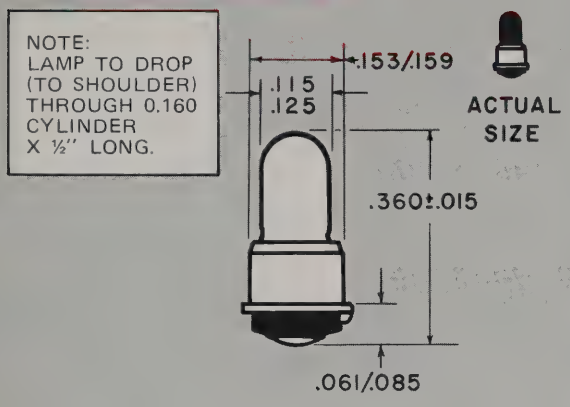


Fig. 1

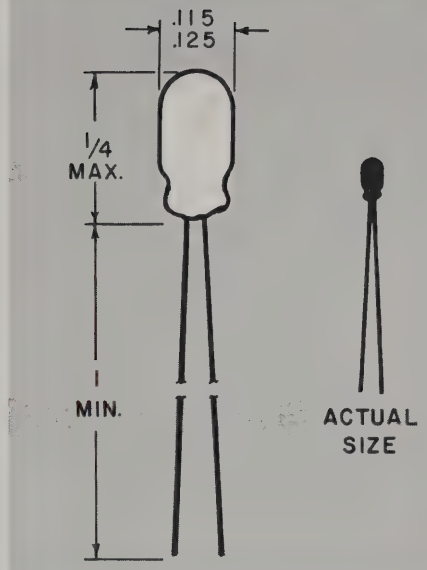


Fig. 2

Line No.	GE Lamp Number	Federal Stock Number 6240-	Military Standards Number	Special Description	Design Volts	Design Amps	Approx. Mean Spherical Candle-power	Base	Fila-ment Desig-nation	Light Center Lgth. (Inch)	Max. Over-all Lgth. (Inch)	Rated Average Lab. Life (79) (Hours	Fig. No.
9-1	**2128D**			1" minimum tinned leads	3	.010 .015	.0005	Wire Terminal	C-2R	—	1/4	60,000	2
-2	**680D**	678-1965	24367-680	1" minimum tinned leads	5	.06	.03± 25%	Wire Terminal	C-2R	—	1/4	60,000 38 75	2
-3	**680AS-15**	962-5255	24367-680AS-15	Aged and selected. 1" minimum tinned leads	5	.06	.03± 15%	Wire Terminal	C-2R	—	1/4	60,000 38 75	2
-4	**682**	879-4980	24515-682	—	5	.06	.03± 25%	Sub-Midget Flanged	C-2R	3/16	3/8	60,000 38 75	1
-5	**682AS-15**			Aged and selected	5	.06	.03± 15%	Sub-Midget Flanged	C-2R	3/16	3/8	60,000 38 75	1
-6	**683D**	060-2941	24367-683	1" minimum tinned leads	5	.06	.05± 25%	Wire Terminal	C-2R	—	1/4	40,000	2
-7	**683AS-15**	062-6173	24367-683AS-15	Aged and selected. 1" minimum tinned leads	5	.06	.05± 15%	Wire Terminal	C-2R	—	1/4	40,000	2
-8	**685**	752-2581	24515-685	—	5	.06	.05± 25%	Sub-Midget Flanged	C-2R	3/16	3/8	40,000	1
-9	**685AS-15**	727-2459	24515-685AS-15	Aged and selected	5	.06	.05± 15%	Sub-Midget Flanged	C-2R	3/16	3/8	40,000	1
-10	**713D**	—	24367-713	1" minimum tinned leads	5	.075	.09± 25%	Wire Terminal	C-2R	—	1/4	40,000	2
-11	**713AS-10**			Aged and selected 1" minimum tinned leads	5	.075	.09+ 10%	Wire Terminal	C-2R	—	1/4	40,000	2
-12	**714**	—	24515-714	—	5	.075	.09± 25%	Sub-Midget Flanged	C-2R	3/16	3/8	25,000 39	1
-13	**714AS-15**	—	24515-714AS-15	Aged and selected	5	.075	.09± 15%	Sub-Midget Flanged	C-2R	3/16	3/8	25,000 39	1
-14	**715D**	080-4508	24367-715	1" minimum tinned leads	5	.115	.15± 25%	Wire Terminal	C-2R	—	1/4	40,000 75	2
-15	**715R**	—	—	Outside coated red. 1" minimum tinned leads	5	.115	—	Wire Terminal	C-2R	—	1/4	40,000 75	2
-16	**715AS-10**			Aged and selected. 1" minimum tinned leads	5	.115	.15± 10%	Wire Terminal	C-2R	—	1/4	40,000 75	
-17	**715AS-15**	—	24367-715AS-15	Aged and selected. 1" minimum tinned leads	5	.115	.15± 15%	Wire Terminal	C-2R	—	1/4	40,000 75	2
-18	**718**	764-8237	24515-718	—	5	.115	.15± 25%	Sub-Midget Flanged	C-2R	3/16	3/8	40,000 75	1
-19	**718AS-15**			Aged and selected	5	.115	.15± 15%	Sub-Midget Flanged	C-2R	3/16	3/8	40,000 75	1

(SEE FOOTNOTES—PAGE 26)

T-1¼ Line

APPROX. 3/32 IN. DIAMETER

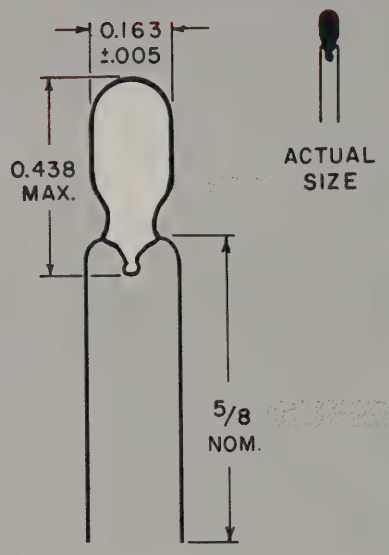


Fig. 3

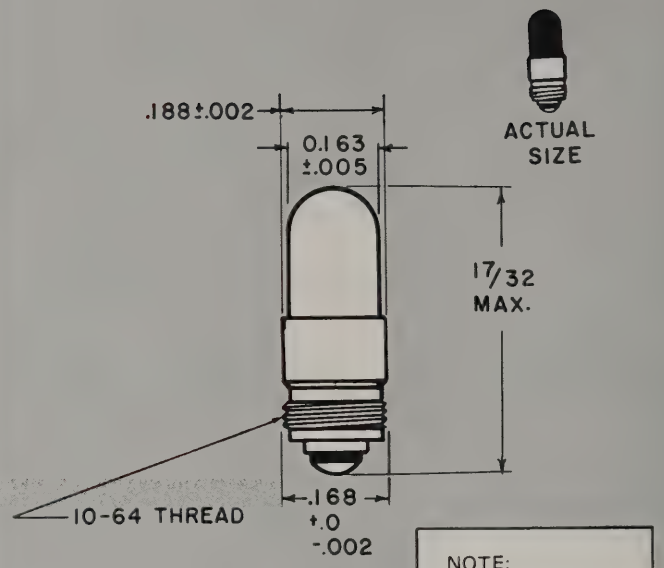


Fig. 4

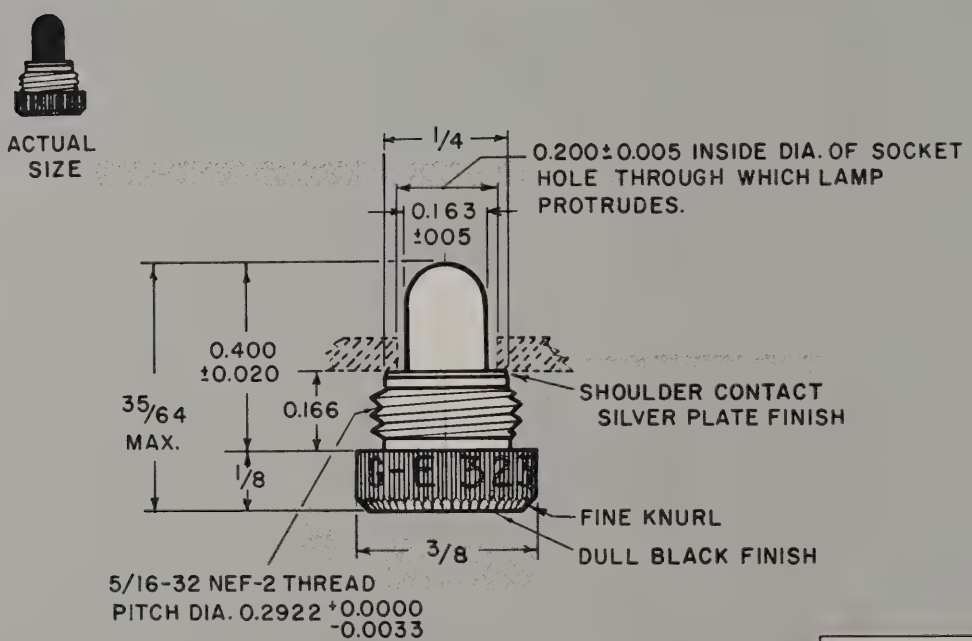


Fig. 5

Line No.	GE Lamp Number	Federal Stock Number 6240-	Military Standards Number	Special Description	Design Volts	Design Amps	Approx. Mean Spherical Candle-power	Base	Fila-ment Desig-nation	Light Center Lgth. (Inch)	Max. Over-all Lgth. (Inch)	Rated Average Lab. Life (Hours)	Fig. No.
11-1	**2135D**	—	—	5/8" minimum leads	1.3	.03	.01	Wire Terminal [74]	S-2	—	.478	50 [116]	3
-2	**325**	635-9800	51608-3	—	3	.19	.25	Special [45]	C-2R	7/16	17/32	350	4
-3	**2139D**	944-7018	—	Approx. 5/8" leads	3	.19	.25	Wire Terminal [74]	C-2R	—	.438	350	3
-4	**323**	—	25236-323	—	3	19	.25	Special [52]	C-2R	.178	35/64	350	5
-5	**673**	—	—	—	4.5	.29	1.05	Special [45]	C-2R	7/16	17/32	100	4
-6	**583D**	—	—	Approx. 5/8" leads	5	.06	.05± 25%	Wire Terminal [74]	C-2R	—	.438	25,000 [38 79]	3
-7	**583DX**	—	—	Approx. 5/8" leads tinned . . .	5	.06	.05± 25%	Wire Terminal [74]	C-2R	—	.438	25,000 [38 79]	3
-8	**2114D**	914-5609	—	Approx. 7/8" leads	6	.06	.13	Wire Terminal [74]	C-2R	—	.438	3,000 [79]	3
-9	**634D**	—	—	Approx. 5/8" leads	6	.20	.63	Wire Terminal [74]	C-2R	—	.420	1,000	3

(SEE FOOTNOTES—PAGE 26)

T-1 3/4 Line

APPROX. 7/32 IN. DIAMETER

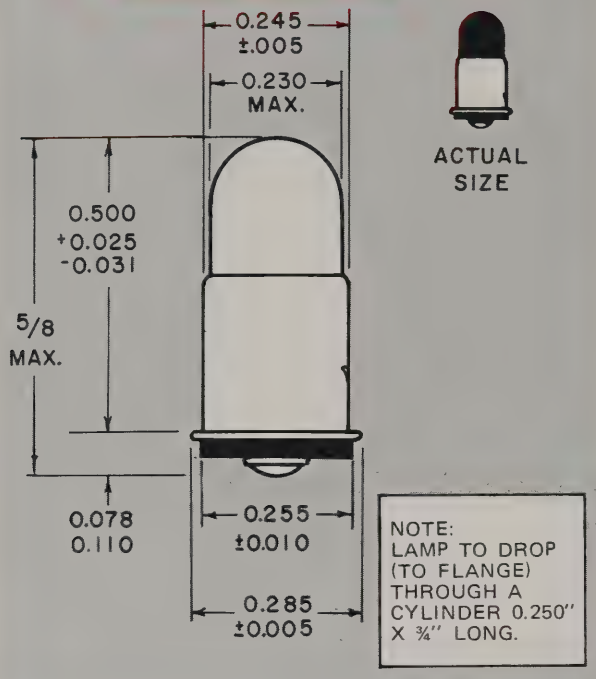


Fig. 7

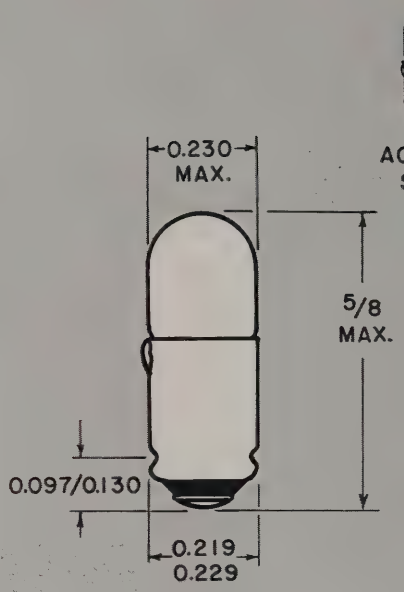


Fig. 8

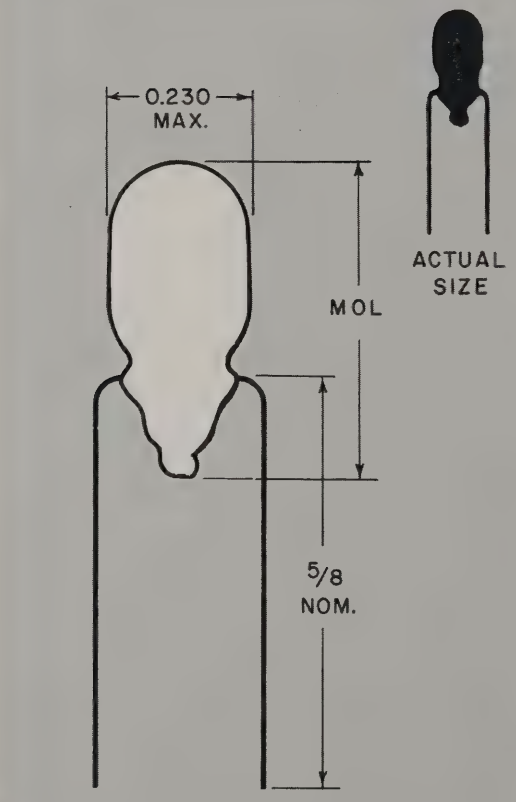
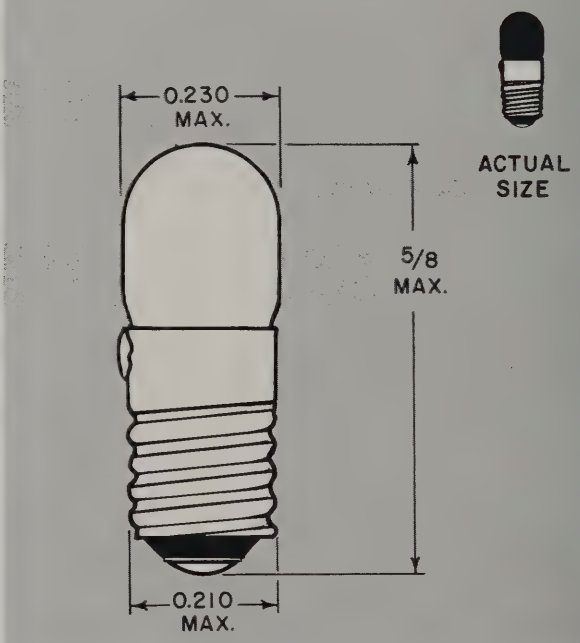


Fig. 9



OUTSIDE DIAMETER		THREADS PER INCH	DEPTH OF THREAD	RADIUS OF THREAD
MAJOR	MINOR			
CREST OF THREAD	ROOT OF THREAD	25.4	0.011" MIN.	0.0116"
MIN. 0.206"	- - -			
MAX. 0.210"	0.188"			

Fig. 10

Line No.	GE Lamp Number	Federal Stock Number 6240-	Military Standards Number	Special Description	Design Volts	Design Amps	Approx. Mean Spherical Candle-power	Base	Fila-ment Desig-nation	Light Center Lgth. (Inch)	Max. Over-all Lgth. (Inch)	Rated Average Lab. Life (Hours)	Fig. No.
13-1	**2535D**	—	—	$1\frac{1}{4}$" min leads	1.3	.03	.001-.0075	Wire Terminal [74]	S-2	—	.52	500 [116]	9
-2	**2184D**	—	—	Approx. $\frac{3}{4}$" leads	1.3	.05	.02	Wire Terminal [74]	S-2	—	.52	30 [116]	9
-3	**331**	228-7130	—	—	1.35	.06	.01	S.C. Midget Flanged	C-6	$\frac{3}{8}$	$\frac{5}{8}$	5,000 [116]	7
-4	**2119D**	914-5610	—	Approx. $\frac{3}{4}$" leads. Black bead	2	.06	.02	Wire Terminal [74]	C-2R	—	.52	10,000 [116]	9
-5	**251**	951-6020	—	—	2.47	.30	.45	S.C. Midget Flanged	C-2R	$\frac{3}{8}$	$\frac{5}{8}$	30 [116]	7
-6	**1767**	246-5060	15612-4	—	2.5	.20	.20	Midget Screw	C-2R	$\frac{33}{64}$	$\frac{5}{8}$	1,000 [116]	10
-7	**1769**	270-4697	15612-3	—	2.5	.20	.20	Midget Screw	C-2R	$\frac{33}{64}$	$\frac{23}{32}$	1,000 [116]	12A
-8	**268**	916-1639	—	—	2.5	.35	.20	S.C. Midget Flanged	C-2R	$\frac{7}{16}$	$\frac{5}{8}$	20,000 [116]	7
-9	**2169D**	—	—	Approx. $\frac{5}{8}$" leads	2.5	.35	.20	Wire Terminal [74]	C-2R	—	.52	20,000 [116]	9
-10	**1738D**	839-5162	—	Approx. $\frac{3}{4}$" leads. Green bead	2.7	.06	.04	Wire Terminal [74]	C-2R	—	.52	6,000 [116]	9
-11	**338**	542-6571	25237-338	—	2.7	.06	.04	S.C. Midget Flanged	C-2R	$\frac{3}{8}$	$\frac{5}{8}$	6,000 [116]	7
-12	**2158D**	905-6050	—	Approx. $\frac{5}{8}$" leads	3	.013-.017	.002-.004	Wire Terminal [74]	C-6	—	.52	20,000 [116]	9
-13	**7375**	—	—	—	3	.013-.017	.002-.004	Bi-Pin M-23	C-6	$\frac{1}{2}$	.61	20,000 [116]	11
-14	**7332**	—	—	—	5	.06	.03	S.C. Midget Flanged	C-2R	$\frac{3}{8}$	$\frac{5}{8}$	30,000 [38 75 79]	7
-15	**8805D**	—	—	Approx. $\frac{3}{4}$" leads	5	.06	.03	Wire Terminal [74]	C-2R	—	.52	30,000 [38 75 79]	9
-16	**7333**	—	—	—	5	.06	.05	S.C. Midget Flanged	C-2R	$\frac{3}{8}$	$\frac{5}{8}$	25,000 [75 79]	7
-17	**2200D**	—	—	Approx. $\frac{3}{4}$" leads	5	.06	.05	Wire Terminal [74]	C-2R	—	.52	25,000 [75 79]	9
-18	**7361**	—	—	—	5	.06	.05	Bi-Pin M-23	C-2R	$\frac{1}{2}$	.625	25,000 [75 79]	11
-19	**7335**	—	—	—	5	.115	.15	S.C. Midget Flanged	C-2R	$\frac{3}{8}$	$\frac{5}{8}$	20,000 [39 79]	7
-20	**7335AS-15**	—	—	Aged and selected	5	.115	.15±15%	S.C. Midget Flanged	C-2R	$\frac{3}{8}$	$\frac{5}{8}$	20,000 [39 79]	7
-21	**7362**	—	—	—	5	.115	.15	Bi-Pin M-23	C-2R	$\frac{1}{2}$	.61	20,000 [39 79]	11
-22	**2191D**	—	—	Approx. $\frac{5}{8}$" leads	6	.036-.044	.014-.036	Wire Terminal [74]	C-2V	—	.52	40,000 [79]	9
-23	**1730D**	838-9023	—	Approx. 1" leads	6	.04	.04	Wire Terminal [74]	C-2V	—	.52	10,000 [79]	9
-24	**342**	643-4532	15612-5	—	6	.04	.04	Midget Screw	C-2V		$\frac{23}{32}$	10,000 [79]	12A
-25	**345**	683-0560	—	—	6	.04	.04	S.C. Midget Flanged	C-2V	$\frac{3}{8}$	$\frac{5}{8}$	10,000 [79]	7
-26	**7945**	—	—	—	6	.04	.04	Bi-Pin M-23	C-2V	$\frac{1}{2}$	.61	10,000 [79]	11

(SEE FOOTNOTES—PAGE 26)

T-1¾ Line continued

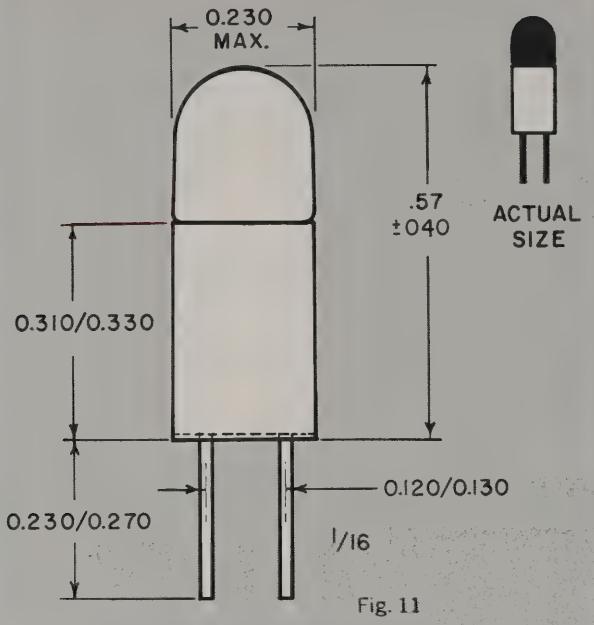


Fig. 11

NOTE:
LAMP TO DROP THROUGH A CYLINDER 0.240"DIA., ¾" LONG.

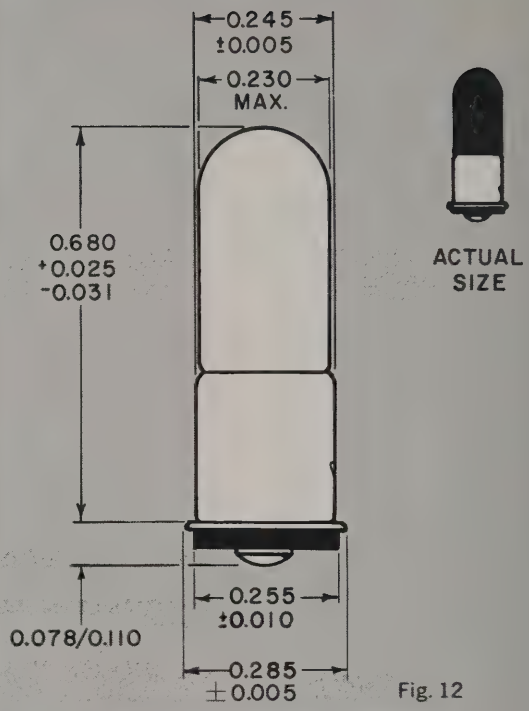
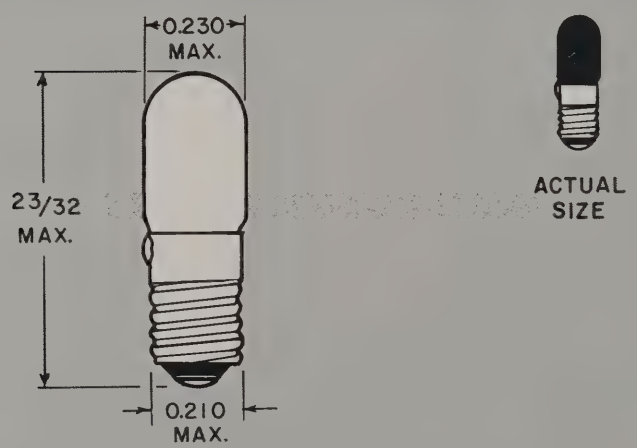


Fig. 12

NOTE:
LAMP TO DROP (TO FLANGE) THROUGH A CYLINDER 0.280 DIA. X 3/4" LONG



OUTSIDE DIAMETER		THREADS PER INCH	DEPTH OF THREAD	RADIUS OF THREAD
MAJOR	MINOR			
CREST OF THREAD	ROOT OF THREAD	25.4	0.011" MIN.	0.0116"
MIN. 0.206"	- — -			
MAX. 0.210"	0.188"			

Fig. 12A

Line No.	GE Lamp Number	Federal Stock Number 6240-	Military Standards Number	Special Description	Design Volts	Design Amps	Approx. Mean Spherical Candle-power	Base	Fila-ment Desig-nation	Light Center Lgth. (Inch)	Max. Over-all Lgth. (Inch)	Rated Average Lab. Life (Hours	Fig. No.
15-1	**328**	155-7857	25237-328	—	6	.20	.34 [10]	S.C. Midget Flanged	C-2R	3/8	5/8	1,000	7
-2	**328AS-10**	801-5941	25237-328AS-10	Aged and selected. ±10% candlepower	6	.20	.34 [10]	S.C. Midget Flanged	C-2R	3/8	5/8	1,000	7
-3	**7328**	—	—	—	6	.20	.34 [10]	Bi-Pin M-23	C-2R	1/2	.61	1,000	11
-4	**1784D**	949-8120	—	Approx. 5/8″ leads. White bead	6	.20	.60	Wire Terminal [74]	C-2R	—	.52	1,000	9
-5	**1768**	269-0964	15612-1	—	6	.20	.60	Midget Screw	C-2R	33/64	5/8	1,000	10
-6	**337**	660-8467	—	—	6	.20	.60	Midget Grooved	C-2R	3/8	5/8	1,000	8
-7	**328R**	274-4015	25237-328R	Outside coated red [16]	6	.20	—	S.C. Midget Flanged	C-2R	—	5/8	1,000	7
-8	**2180D**	950-1695	—	Approx. 5/8″ leads. White bead	6.3	.04	.03	Wire Terminal [74]	C-2V	—	.52	20,000 [43] [79]	9
-9	**2179D**	—	—	Approx. 5/8″ leads. Tinned to 1/4″ of glass	6.3	.04	.03	Wire Terminal [74]	C-2V	—	.52	20,000 [43] [79]	9
-10	**380**	926-7603	—	—	6.3	.04	.03	S.C. Midget Flanged	C-2V	3/8	5/8	20,000 [43] [79]	7
-11	**7380**	—	—	—	6.3	.04	.03	Bi-Pin M-23	C-2V	1/2	.61	20,000 [43] [79]	11
-12	**2039D**	—	—	Approx. 1″ leads	6.3	.075	.23	Wire Terminal [74]	C-2R	—	.52	1,000	9
-13	**1775**	690-2274	—	—	6.3	.075	.23	Midget Screw	C-2R	33/64	5/8	1,000	10
-14	**377**	—	—	—	6.3	.075	.23	S.C. Midget Flanged	C-2R	3/8	5/8	1,000	7
-15	**7377**	—	—	—	6.3	.075	.23	Bi-Pin M-23	C-2R	1/2	.61	1,000	11
-16	**350**	940-7072	—	—	6.3	.15	.45	S.C. Midget Flanged	C-2R	3/8	5/8	3,000 [79]	7
-17	**2112D**	914-5607	—	Approx. 5/8″ leads. Yellow bead	6.3	.20	.55	Wire Terminal [74]	C-2R	—	.52	20,000 [79]	9
-18	**349**	080-8684	—	—	6.3	.20	.55	S.C. Midget Flanged	C-2R	3/8	5/8	20,000 [79]	7
-19	**7349**	—	—	—	6.3	.20	.55	Bi-Pin M-23	C-2R	1/2	.61	20,000 [79]	11
-20	**398**	875-7979	—	—	6.3	.20	.55	Midget Grooved	C-2R	3/8	5/8	20,000 [79]	8

(SEE FOOTNOTES—PAGE 26)

T-1¾ Line continued

Line No.	GE Lamp Number	Federal Stock Number 6240-	Military Standards Number	Special Description	Design Volts	Design Amps	Approx. Mean Spherical Candle-power	Base	Fila-ment Desig-nation	Light Center Lgth. (Inch)	Max. Over-all Lgth. (Inch)	Rated Average Lab. Life (Hours)	Fig. No.
16-1	**2181D**	949-8109	—	Approx. 5/8" leads. Yellow bead	6.3	.20	.40	Wire Terminal [74]	C-2F	—	.52	20,000[43 79]	9
-2	**378**	941-2698	—	—	6.3	.20	.40	Midget Screw	C-2F	33/64	23/32	20,000[43 79]	12A
-3	**379**	941-2697	—	—	6.3	.20	.40	Midget Grooved	C-2F	3/8	5/8	20,000[43 79]	8
-4	**381**	—	—	—	6.3	.20	.40	S.C. Midget Flanged	C-2F	3/8	5/8	20,000[43 79]	7
-5	**7381**	—	—	—	6.3	.20	.40	Bi-Pin M-23	C-2F	1/2	.61	20,000[43 79]	11
-6	**1869D**	722-6467	—	Lead 5/8" max. Blue bead	10	.014± 10%	.006	Wire Terminal [74]	C-2F	—	.52	50,000+[116]	9
-7	**2149D**	949-8096	—	Lead 5/8" max. Tinned to 1/4" of glass. Blue bead	10	.014± 10%	.006	Wire Terminal [74]	C-2F	—	.52	50,000+[116]	9
-8	**344**	722-6467	—	—	10	.014± 10%	.006	S.C. Midget Flanged	C-2F	3/8	5/8	50,000+[116]	7
-9	**709**	929-0585	—	—	10	.014± 10%	.006	Midget Grooved	C-2F	3/8	5/8	50,000+[116]	8
-10	**7344**	—	—	—	10	.014± 10%	.006	Bi-Pin M-23	C-2F	1/2	.61	50,000+[116]	11
-11	**2107D**	782-5991	—	Approx. 5/8" leads. Pink bead	10	.04	.08	Wire Terminal [74]	C-2F	—	.52	5,000[79]	9
-12	**2204D**	—	—	Approx. 5/8" tinned leads. Brown bead	10	.04	.08	Wire Terminal [74]	C-2F	—	.52	5,000[79]	9
-13	**367X**	764-7483	—	—	10	.04	.08	S.C. Midget Flanged	C-2F	3/8	5/8	5,000[79]	7
-14	**7367**	—	—	—	10	.04	.08	Bi-Pin M-23	C-2F	1/2	.61	5,000[79]	11
-15	**2174D**	—	—	Approx. 1"	12	.04	.10	Wire Terminal [74]	C-2F	3/8	.52	10,000[79]	9
-16	**394**	—	—	—	12	.04	.10	S.C. Midget Flanged	C-2F	3/8	5/8	10,000[79]	7
-17	**1705D**	838-9029	—	Approx 1" leads. Brown bead	14	.08	.50	Wire Terminal [74]	C-2F	—	.52	2,500[79]	9
-18	**330**	851-4352 AND/OR 196-4491	25237-330	—	14	.08	.50	S.C. Midget Flanged	C-2F	3/8	5/8	2,500[79]	7
-19	**336**	836-4980	—	—	14	.08	.50	Midget Grooved	C-2F	3/8	5/8	2,500[79]	8
-20	**373**	940-7069	—	—	14	.08	.50	Midget Screw	C-2F	33/64	23/32	2,500[79]	12A
-22	**2182D**	987-5464	—	Approx. 5/8" leads. White bead	14	.08	.30	Wire Terminal [74]	C-2F	—	.52	40,000[43 79]	9
-23	**386**	941-268	—	—	14	.08	.30	Midget Grooved	C-2F	3/8	5/8	40,000[43 79]	8
-24	**382**	965-1381	—	—	14	.08	.30	S.C. Midget Flanged	C-2F	3/8	5/8	40,000[43 79]	7
-25	**2382D**	—	—	Approx. 1" Long leads	14	.08	.30	Wire Terminal [74]	C-2F	—	.52	40,000[43 79]	9
-26	**2382DX**	—	—	1" leads tinned	14	.08	.30	Wire Terminal [74]	C-2F	—	.52	40,000[43 79]	9
-27	**8362**	—	—	—	14	.08	.30	Midget Screw	C-2F	—	23/32	40,000[43 79]	12A
-28	**7382**	—	—	—	14	.08	.30	Bi-Pin M-23	C-2F	1/2	.61	40,000[43 79]	11
-29	**2162D**	944-7021	—	Approx. 1" leads	14	.10	.50	Wire Terminal [74]	C-2F	—	.52	10,000[79]	9
-30	**2362D**	—	—	1 1/2" leads	14	.10	.50	Wire Terminal [74]	C-2F	—	.52	10,000[79]	9
-31	**2462D**	—	—	1 1/4" leads	14	.10	.50	Wire Terminal [74]	C-2F	—	.52	10,000[79]	9
-32	**2102D**	914-5602	—	Approx. 5/8" leads. Purple bead	18	.04	.15	Wire Terminal [74]	C-2F	—	.52	10,000[79]	9
-33	**370**	940-7070	—	—	18	.04	.15	S.C. Midget Flanged	C-2F	3/8	5/8	10,000[79]	7
-34	**7370**	—	—	Approx. 1/4" pin length	18	.04	.15	Bi-Pin M-23	C-2F	1/2	.61	10,000[79]	11

(SEE FOOTNOTES—PAGE 26)

Line No.	GE Lamp Number	Federal Stock Number 6240-	Military Standards Number	Special Description	Design Volts	Design Amps	Approx. Mean Spherical Candle-power	Base	Fila-ment Desig-nation	Light Center Lgth. (Inch)	Max. Over-all Lgth. (Inch)	Rated Average Lab. Life (Hours)	Fig. No.
17-1	**346**	940-7074	—	—	18	.04	.15	Midget Grooved	C-2F	3/8	5/8	10,000[79]	8
-2	**459**	—	—	—	22	.038-.042	.30	S.C. Midget Flanged	C-2F	3/8	5/8	5,000[79]	7
-3	**457**	946-4794	—	—	22	.038-.042	.30	Midget Grooved	C-2F	3/8	5/8	5,000[79]	8
-4	**7001**	—	—	—	24	.05	.50	Bi-Pin M-23	C-2F	1/2	.61	2,000[79]	11
-5	**1762D**	060-4648	—	Min. 5/8" leads. Green bead .	28	.04	.34	Wire Terminal[74]	C-2F	—	.52	4,000[79]	9
-6	**1764D**	968-7971	—	Min. 1" leads. White bead . . .	28	.04	.34	Wire Terminal[74]	C-2F	—	.52	4,000[79]	9
-7	**2148D**	944-7025	—	Approx. 5/8" leads, tinned to 1/4" of glass. Green bead . . .	28	.04	.34	Wire Terminal[74]	C-2F	—	.52	4,000[79]	9
-8	**327**	155-7836	25237-327	—	28	.04	.34	S.C. Midget Flanged	C-2F	3/8	5/8	4,000[79]	7
-9	**327AS-15**	080-2012	25237-327AS-15	Aged and selected. ± 15% C.P.	28	.04	.34	S.C. Midget Flanged	C-2F	3/8	5/8	4,000[79]	7
-10	**334**	295-1617	—	—	28	.04	.34	Midget Grooved	C-2F	3/8	5/8	4,000[79]	8
-11	**7327**	—	—	—	28	.04	.34	Bi-Pin M-23	C-2F	1/2	.61	4,000[79]	11
-12	**335**	270-4698	15612-2	—	28	.04	.34	Midget Screw	C-2F	33/64	23/32	4,000[79]	12A
-13	**2187D**	949-8106	—	Min. 1" leads. Pink bead . . .	28	.04	.30	Wire Terminal[74]	C-2F	—	.52	7,000[42 79]	9
-14	**2187U**	949-8106	—	Min. 1" leads. Pink bead . . .	28	.04	.30	Wire Terminal[74]	C-2F	—	.52	7,000[42 79]	9
-15	**387**	763-7744	25237-387	—	28	.04	.30	S.C. Midget Flanged	C-2F	3/8	5/8	7,000[42 79]	7
-16	**388**	875-7977	—	—	28	.04	.30	Midget Grooved	C-2F	3/8	5/8	7,000[42 79]	8
-17	**7387**	—	—	—	28	.04	.30	Bi-Pin M-23	C-2F	1/2	.61	7,000[42 79]	11
-18	**2185D**	949-8107	—	Min. 1" leads. Yellow bead . .	28	.04	.15	Wire Terminal[74]	C-2F	—	.700	10,000[43 79]	9
-19	**385**[78]	941-2696	—	—	28	.04	.15	S.C. Midget Flanged	C-2F	7/16	13/16	10,000[43 79]	12
-20	**8461D**	—	—	3/4" leads	28	.05	.50	Wire Terminal	C-2F	—	.52	500[75]	9
-21	**8361D**	—	—	—	28	.065	.65	Wire Terminal[74]	C-2F	—	.52	10,000[79]	9
-22	**7341**	—	—	—	28	.065	.65	S.C. Midget Flanged	C-2F	3/8	.61	10,000[79]	7

(SEE FOOTNOTES—PAGE 26)

T-1¾ Line

APPROX. 7/32 IN. DIAMETER

FLATTENED WIRES MAY NOT BE IN INTIMATE CONTACT WITH FLAT GLASS SURFACE.

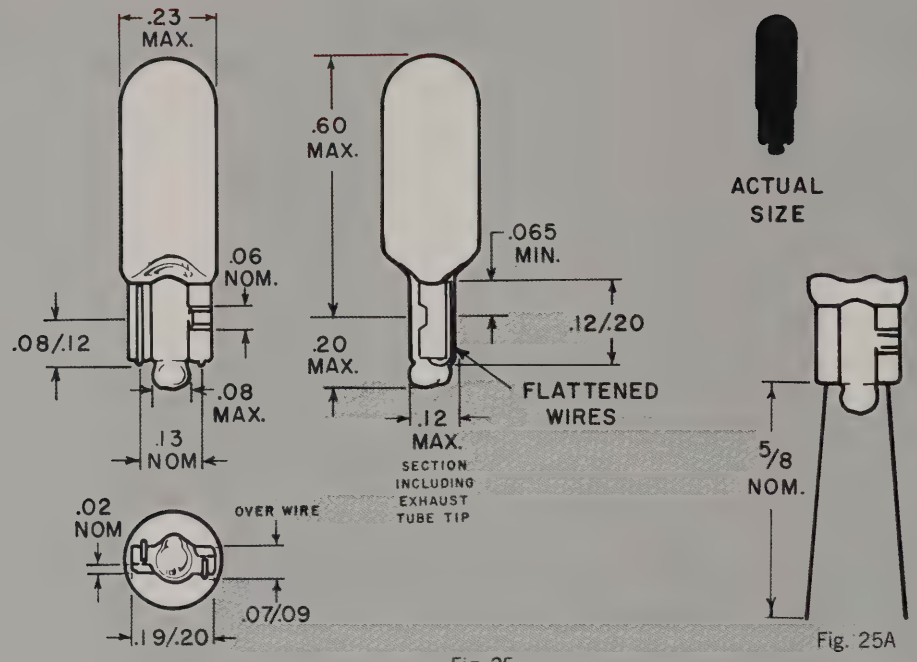


Fig. 25

Fig. 25A

Line No.	GE Lamp Number	Federal Stock Number 6240-	Military Standards Number	Special Description	Design Volts	Design Amps	Approx. Mean Spherical Candle-power	Base	Fila-ment Desig-nation	Light Center Lgth. (Inch)	Max. Over-all Lgth. (Inch)	Rated Average Lab. Life (Hours)	Fig. No.
18-1	37	—	—	All Glass Wedge	14	.09	.50	Wedge Base	C-2F	.40	.80	1500	25
-2	37E	—	—	All Glass Wedge [74] Extended leads	14	.09	.50	Wedge base 5/8" leads	C-2F	—	.80	1500	25A
-3	56	—	—	All Glass Wedge	5	.115	.15	Wedge Base	C-2R	.40	.80	20,000[75] [79]	25
-4	73	—	—	All Glass Wedge	14	.08	.30	Wedge Base	C-2F	.40	.80	15,000[79]	25
-5	73E	—	—	All Glass Wedge [74] Extended leads	14	.08	.30	Wedge base 5/8" leads	C-2F	—	.80	15,000[79]	25A
-6	74	—	—	All Glass Wedge	14	.1	.70	Wedge Base	C-2F	.40	.80	500	25
-7	79	—	—	All Glass Wedge	6	.20	.60	Wedge Base	C-2R	.40	.80	1000[75]	25
-8	84	—	—	All Glass Wedge	6.3	.04	.03	Wedge Base	C-2V	.40	.80	20,000[79]	25
-9	85	—	—	All Glass Wedge	28	.04	.30	Wedge Base	C-2F	.40	.80	7000[79]	25
-10	86	—	—	All Glass Wedge	6.3	.20	.40	Wedge Base	C-2F	.40	.80	20,000[79]	25
-11	86E	—	—	All Glass Wedge [74] Extended leads	6.3	.20	.40	Wedge base 5/8" leads	C-2F	—	.80	20,000[79]	25A

(SEE FOOTNOTES—PAGE 26)

T-2 Line

APPROX. ¼ IN. DIAMETER

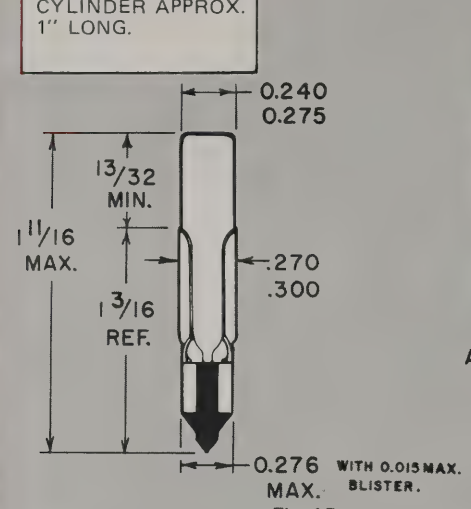
Line No.	GE Lamp Number	Federal Stock Number 6240-	Military Standards Number	Special Description	Design Volts	Design Amps	Design End[24] Foot-Candles	Approx. Mean Spherical Candle-power	Base	Fila-ment Desig-nation	Approx. Average Cold Resis-tance	Max. Over-all Lgth. (Inch)	Rated Average Lab. Life (Hours)	Fig. No.
19-1	**6A1**	266-9944	—	—	6	.12-.16	1800	.40	Tel. Slide #1	C-2R	4.3	1 11/16	5,000 [79]	16
-2	**6C1**	237-7877	15609-10	Filament tilted	6	.035-.045	100	.04	Tel. Slide #1	C-2V	18	1 11/16	7,500 [79]	16
-3	**6D5**	—	—	—	6	.12-.16	2500	.34	Tel. Slide #5	C-2R	4.3	.915	5,000 [79]	17
-4	**6E5**	—	—	Filament tilted	6	.035-.045	150	.03	Tel. Slide #5	C-2V	18	.915	7,500 [79]	17
-5	**6F5**	—	—	—	6	.220-.260	2800	.25	Tel. Slide #5	C-2R	2.5	.797	10,000 [79]	17
-6	**10C5**	847-5134	—	Filament tilted	10	.035-.045	400	.06	Tel. Slide #5	C-2V	28	.915	10,000 [79]	17
-7	**12A1**	186-6251	15609-3	—	12	.09-.11	900	.30	Tel. Slide #1	C-2F	12	1 11/16	7,500 [79]	16
-8	**12B1**	988-0522	—	Filament tilted	12	.032-.038	400	.09	Tel. Slide #1	C-2V	34	1 11/16	7,500 [79]	16
-9	**12C1**	246-5059	15609-7	—	12	.15-.19	2500	1.0	Tel. Slide #1	C-2F	6.5	1 11/16	1,500	16
-10	**12E5**	—	—	—	12	.035-.045	250	.06	Tel. Slide #5	C-2F	34	.915	5,000 [79]	17
-11	**1774**	941-2702	—	—	16	.11-.15	2000	1.2	Tel. Slide #1	C-2F	12	1 11/16	2,500 [79]	16
-12	**18A1**	498-7669	—	—	18	.035-.045	450	.15	Tel. Slide #1	C-2F	45	1 11/16	10,000 [79]	16
-13	**24A1**	155-7816	—	—	24	.025-.035	350	.15	Tel. Slide #1	C-2F	90	1 11/16	7,500 [79]	16
-14	**1757D**	—	—	Approx. 7/8" leads	24	.025-.035	350	.15	Wire Terminal[74]	C-2F	90	1.25	7,500 [79]	21
-15	**24B1**	155-7819	—	—	24	.035-.045	600	.20	Tel. Slide #1	C-2F	62	1 11/16	5,000 [79]	16
-16	**24B2**	471-6565	—	—	24	.035-.045	600	.20	Tel. Slide #2	C-2F	62	1 11/16	5,000 [79]	15
-17	**24C1**	228-7131	—	—	24	.06-.085	1900	.60	Tel. Slide #1	C-2F	30	1 11/16	5,000 [79]	16
-18	**24D1**	156-1602	15609-8	—	24	.09-.11	2000	.70	Tel. Slide #1	C-2F	22	1 11/16	5,000 [79]	16
-19	**24E1**	155-7837	—	—	24	.032-.038	450	.20	Tel. Slide #1	C-2F	70	1 11/16	5,000 [79]	16
-20	**24E2**	—	—	—	24	.032-.038	450	.20	Tel. Slide #2	C-2F	70	1 11/16	5,000 [79]	15
-21	**24F5**	615-0105	—	—	24	.032-.038	650	.17	Tel. Slide #5	C-2F	70	.915	5,000 [79]	17
-22	**24EX**	—	—	Special Round End	24	.032-.038	350	.20	Tel. Slide #1	C-2F	70	1 11/16	5,000 [79]	16
-23	**24X**	178-9941	—	Special Tel. Slide Base with raised prick punches round end	24	.032-.038	350	.20	Special #2	C-2F	70	1 11/16	5,000 [79]	20

(SEE FOOTNOTES—PAGE 26)

T-2 Line continued

NOTE:
LAMP TO DROP THROUGH A 0.310" CYLINDER APPROX. 1" LONG.

TEL. SLIDE ANSI NO.2

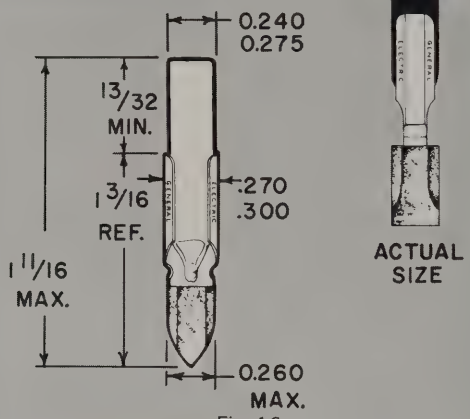


ACTUAL SIZE

Fig. 15

NOTE:
LAMP TO DROP THROUGH A 0.310" CYLINDER APPROX. 1" LONG.

TEL. SLIDE ANSI NO.1

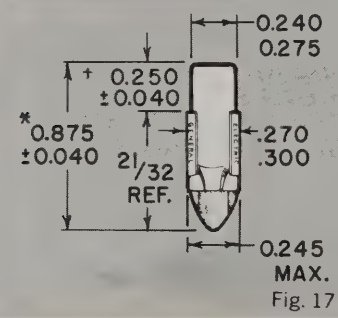


ACTUAL SIZE

Fig. 16

NOTE:
LAMP TO DROP THROUGH A 0.310" CYLINDER OF APPROX. ½" LONG.

TEL. SLIDE ANSI NO.5



ACTUAL SIZE

*LAMP 6F5 MOL.796 MAX.

+N/A

Fig. 17

NOTE:
LAMP TO DROP THROUGH A 0.310" CYLINDER APPROX. 1" LONG.

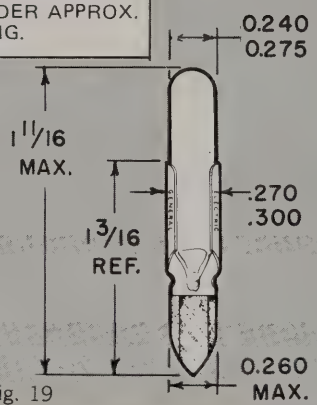


Fig. 19

ACTUAL SIZE

SPECIAL ROUND END TEL. SLIDE ANSI NO.1

NOTE:
LAMP TO DROP THROUGH A 0.310" CYLINDER APPROX. 1" LONG.

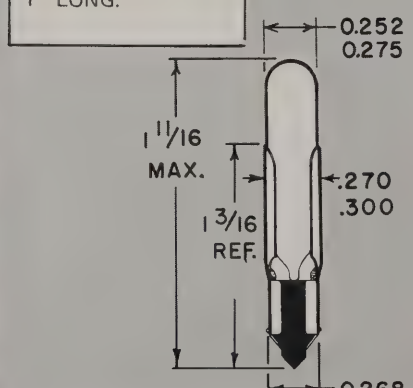


Fig. 20

ACTUAL SIZE

SPECIAL SLIDE BASE ANSI NO.2

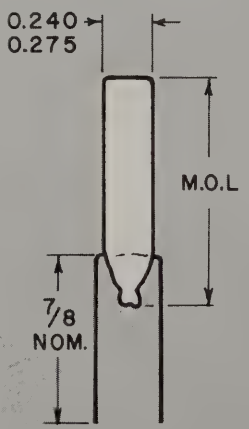


Fig. 21

Line No.	GE Lamp Number	Federal Stock Number 6240-	Military Standards Number	Special Description	Design Volts	Design Amps	Design End[24] Foot-Candles	Approx. Mean Spherical Candle-power	Base	Fila-ment Desig-nation	Approx. Average Cold Resis-tance	Max. Over-all Lgth. (Inch)	Rated Average Lab. Life (79) (Hours)	Fig. No.
21-1	**28E5**	917-0766	—	—	28	.035-.045	900	.20	Tel. Slide #5	C-2F	70	.915	5,000	17
-2	**2137D**	—	—	Approx 7/8" leads	28	.035-.045	900	.20	Wire Terminal[74]	C-2F	70	.782	5,000	21
-3	**30A1**	539-9770	—	—	30	.06-.085	1500	.75	Tel. Slide #1	C-2F	40	1 11/16	7,500	16
-4	**1785D**	949-8115	—	Approx. 7/8" leads	30	.06-.085	1500	.75	Wire Terminal[74]	C-2F	40	1.25	7,500	21
-5	**2029D**	—	—	Approx. 7/8" leads	30	.09-.11	2500	.90	Wire Terminal[74]	C-2F	30	1.25	5,000[75]	21
-6	**35A1**	155-8002	—	—	35	.035-.045	900	.55	Tel. Slide #1	C-2F	76	1 11/16	3,000	16
-7	**35A2**	881-7987	—	—	35	.035-.045	900	.55	Tel. Slide #2	C-2F	76	1 11/16	3,000	15
-8	**48B1**	153-6517	15609-1	—	48	.09-.11	3400	1.5	Tel. Slide #1	C-5	45	1 11/16	5,000	16
-9	**48C1**	153-6515	15609-6	—	48	.032-.038	750	.40	Tel. Slide #1	C-2F	140	1 11/16	5,000	16
-10	**48C2**	715-0037	—	—	48	.032-.038	750	.40	Tel. Slide #2	C-2F	140	1 11/16	5,000	15
-11	**1786D**	959-4733	—	Approx. 7/8" leads	48	.032-.038	750	.40	Wire Terminal[74]	C-2F	140	1.25	5,000	21
-12	**48D1**	266-0960	—	—	48	.017-.025	250	.10	Tel. Slide #1	C-2F	265	1 11/16	15,000	16
-13	**48D2**	881-8014	—	—	48	.017-.025	250	.10	Tel. Slide #2	C-2F	265	1 11/16	15,000	15
-14	**1776D**	—	—	Approx. 7/8" leads	48	.09-.11	3400	1.5	Wire Terminal[74]	C-5	45	1.25	5,000	21
-15	**55B1**	984-1397	—	—	55	.09-.11	3300	1.7	Tel. Slide #1	C-5	53	1 11/16	7,500	16
-16	**55C1**	157-3724	—	—	55	.045-.06	2200	1.1	Tel. Slide #1	C-2F	96	1 11/16	5,000	16
-17	**55C2**	—	—	—	55	.045-.06	2200	1.1	Tel. Slide #2	C-2F	96	1 11/16	5,000	15
-18	**60A1**	179-1802	15609-5	—	60	.045-.055	2200	1.2	Tel. Slide #1	C-5	102	1 11/16	5,000	16

(SEE FOOTNOTES—PAGE 26)

TL-1½ Line

APPROX. 3/16 IN. DIAMETER

(LENS END LAMPS)

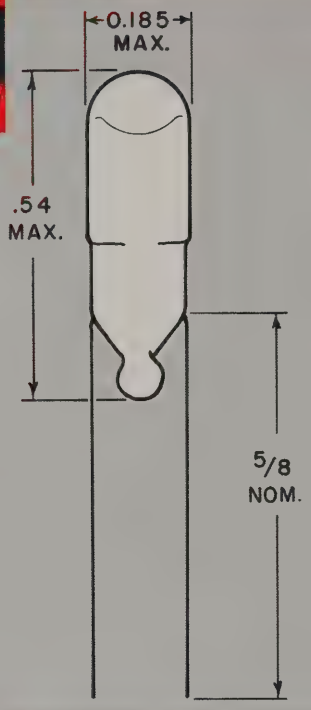


Fig. 21A

TL-1¾ Line

APPROX. 7/32 IN. DIAMETER

(LENS END LAMPS)

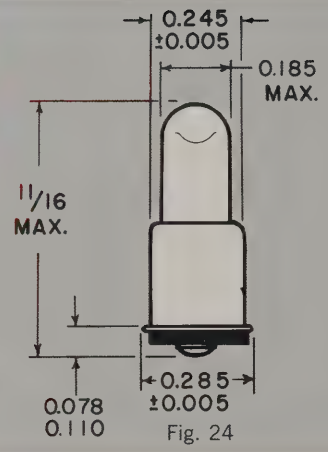


Fig. 24

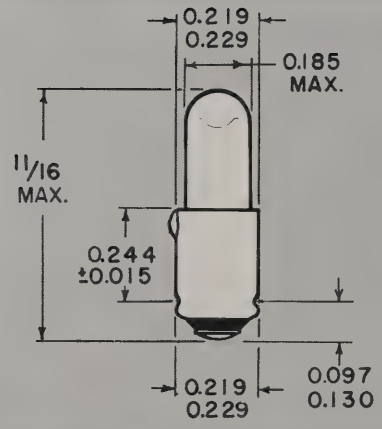


Fig. 22

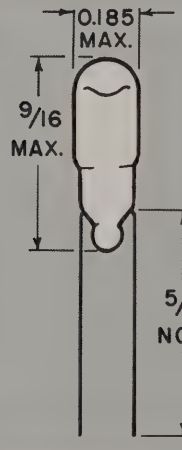
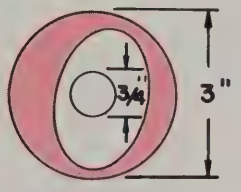


Fig. 23

Line No.	GE Lamp Number	Federal Stock Number 6240-	Military Standards Number	Special Description	Design Volts	Design Amps	Base	Filament Designation	Max. Overall Lgth. (Inch)	Rated Average Lab. Life (Hours	Fig. No.
23-1	**2101D**	—	—	Approx. 5/8" leads.[77]	2.5	.30	Wire Terminal[74]	C-2R	.545	15 [116]	21A
-2	**177D**	—	—	Approx. 5/8" leads.[77]	2.5	.37	Wire Terminal[74]	C-6	.545	15 [116]	21A

(SEE FOOTNOTES—PAGE 26)

TYPICAL BEAM PATTERNS

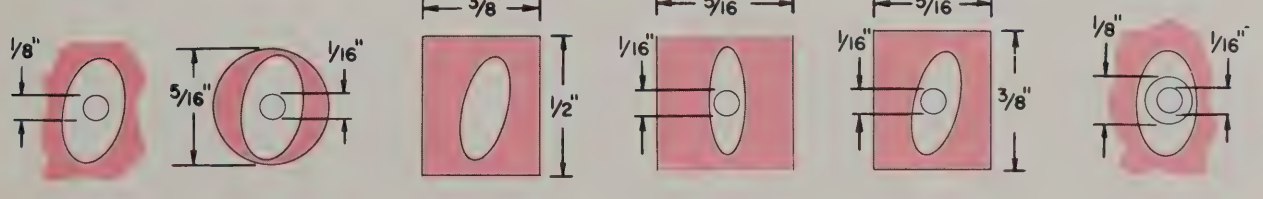


LAMP #2101D #177D

Line No.	GE Lamp Number	Federal Stock Number 6240-	Military Standards Number	Special Description	Design Volts	Design Amps	Base	Filament Designation	Max. Overall Lgth. (Inch)	Rated Average Lab. Life ([116]) (Hours	Fig. No.
23-3	**2124D**	—	—	Approx. 5/8" leads. Minimum beam 1/8" diameter at 3/8" from lens end[80]	2.5	.35	Wire Terminal[74]	C-2R	9/16	20,000	23
-4	**2136D**	—	—	Approx. 5/8" tinned leads.[59 80]	2.5	.35	Wire Terminal[74]	C-2R	9/16	20,000	23
-5	**2140D**	—	—	Approx. 5/8" tinned leads.[56 80]	2.5	.35	Wire Terminal[74]	C-2R	9/16	20,000	23
-6	**252**	088-8054	—	[53 80]	2.5	.35	S.C. Midget Flanged	C-2R	11/16	20,000	24
-7	**253**	713-0237	—	[53 80]	2.5	.35	Midget Grooved	C-2R	11/16	20,000	22
-8	**253X**	072-6127	—	[57 80]	2.5	.35	Midget Grooved	C-2R	11/16	20,000	22
-9	**261**	916-1638	—	[58 80]	2.5	.35	Midget Grooved	C-2R	11/16	20,000	22

(SEE FOOTNOTES—PAGE 26)

TYPICAL BEAM PATTERNS



LAMP #2124D LAMP #2136U #2136D LAMP #2140D LAMP #252 #253 LAMP #253X LAMP #261

T-1½ Halogen

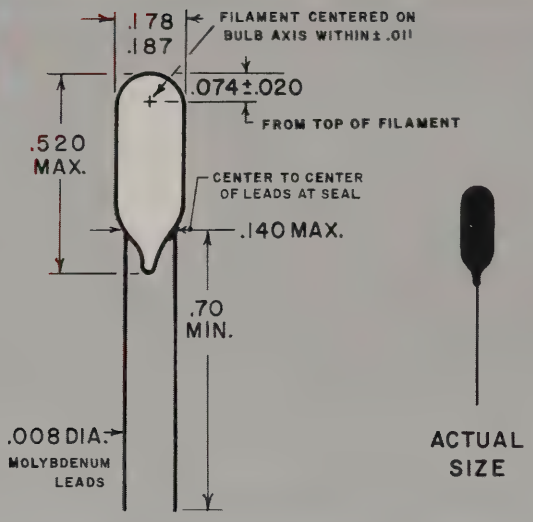


Fig. 30

TL-1½ Halogen

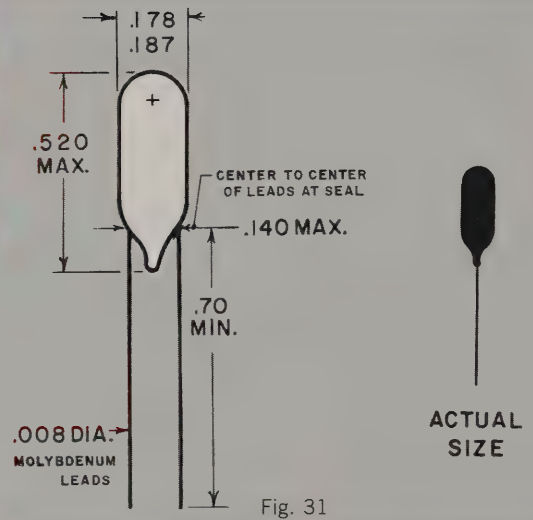


Fig. 31

T-2 Halogen

APPROX. ¼ IN. DIAMETER

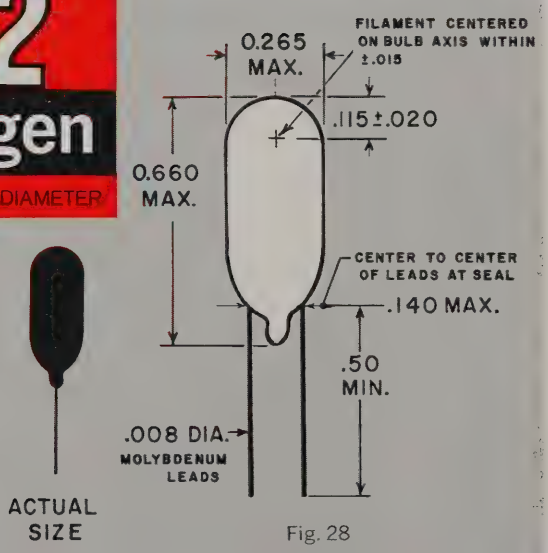


Fig. 28

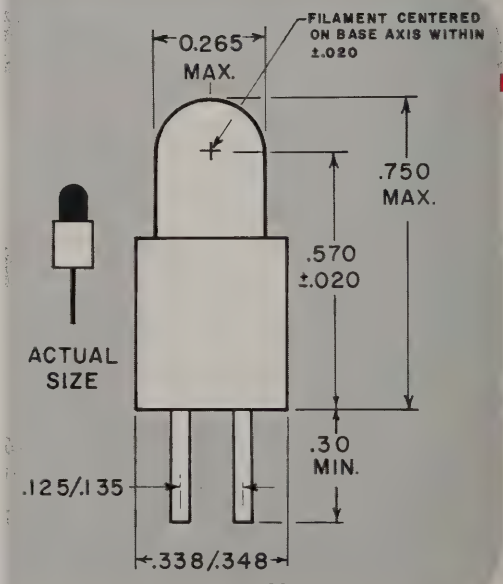


Fig. 29

Line No.	GE Lamp Number	Federal Stock Number 6240-	Military Standards Number	Special Description	Design Volts	Design Amps	Approx. Mean Spherical Candle-power	Base	Fila-ment Desig-nation	Light Center Lgth. (Inch)	Max. Over-all Lgth. (Inch)	Rated Average Lab. Life ([116]) (Hours)	Fig. No.
25-1	**2600**	—	—	Halogen Cycle [11]	3.5	.72	2.9Nom	Wire Terminal	C-6	—	.52	20	30

(SEE FOOTNOTES—PAGE 26)

25-2	**2601**	—	—	Halogen cycle [11]	3.5	.72	—	Wire Terminal	C-6	—	.52	20	31

(SEE FOOTNOTES—PAGE 26)

25-3	**3026**	—	—	Halogen Cycle [11]	6.3	2.1	20Nom.	Wire Terminal	C-6	—	.66	75	28
-4	**3027**	—	—	Halogen Cycle [11]	6.3	2.1	16Nom.	Halogen Two-Pin	C-6	.89	.750	75	29

(SEE FOOTNOTES—PAGE 26)

Footnotes

(10) At 5 volts

(11) CAUTION: This pressure-filled halogen cycle lamp could shatter if scratched or damaged. Use in fixtures designed for the high temperature the lamp requires for proper operation, and that offer protection in case the bulb shatters. Operate only at design volts. Turn power off when changing lamp and allow lamp to cool before removal. For satisfactory performance: (1) limit seal and outer lead wire temperature to 350°C or lead wire deterioration may occur; (2) maintain a minimum bulb wall temperature of 250°C for operation of the halogen cycle.

(13) Supported.

(16) Voltage high for base size.

(38) Actual life depends on use and environment. Theoretical design average life is 100,000 + hours.

(39) Actual life depends on use and environment. Theoretical design average life is 40,000 + hours.

(42) Actual life depends on use and environment. Theoretical design average life is 25,000 hours.

(43) Actual life depends on use and environment. Theoretical design average life is 50,000 hours.

(45) Threaded base approximately $3/16$" diameter by approximately $1/4$" long.

(46) Based with knurled sleeve approximately $9/16$" overall, diameter of knurled portion approximately $3/8$", diameter of threaded portion approximately $5/16$", diameter of smooth portion approximately $17/64$".

(52) Light center length measured from open end of base to filament center. 3-part base with inner sleeve approximately $7/32$" long, and with outer part of base threaded and knurled.

(53) Side solder within 25° of plane of filament. With lamp horizontal and side solder in uppermost position, the following beam pattern limits are provided on a surface perpendicular to the base axis and located $3/8$" from end of bulb: 750 footcandles minimum over a $1/16$" diameter circle centered on base axis. While entire beam may not be centered on base axis, it will fall between two parallel vertical lines $5/16$" apart which are centered on the base axis.

(56) Beam must be completely contained withing a $3/8$" x $1/2$" rectangle at $3/8$" from end of bulb. No axis or footcandle specifications.

(57) Side solder within 25° of plane of filament. With lamp horizontal and side solder in uppermost position, the following beam pattern limits are provided on a surface perpendicular to the base axis and located $3/8$" from end of bulb: 750 footcandles minimum over a $1/16$" diameter circle centered on base axis. While entire beam may not be centered on base axis, it will fall within a rectangle $5/16$" by $3/8$" high whose center is on base axis.

(58) Side solder within 25° of plane of filament. With lamp horizontal and side solder in uppermost position, the following beam pattern limits are provided on a surface perpendicular to the base axis and located $3/8$" from end of bulb: 750 footcandles minimum over a $1/16$" diameter circle centered on base axis. While the entire beam may not be centered on base axis, it will cover at least a $1/8$" circle centered on the base axis.

(59) Beam at approximately $3/8$" from end of lamp entirely contained within a $5/16$" diameter circle and completely covers a $1/16$" diameter circle which is concentric with larger circle. Minimum footcandles over a $1/16$" diameter circle are 750.

(60) Lead wires in upward position.

(61) Consult nearest Sales Office for application information.

(74) This is a butt seal wire terminal lamp. The glass-to-metal seal and tip are fragile. Therefore, any bending of the wire terminals should not be closer to glass than $1/8$" and soldering within $1/8$" of glass seal should be avoided since the heat of the soldering can cause a leak in the seal.

(75) Estimated life based on limited test information.

(76) At approximately 3" from end of bulb, beam will completely cover a $1/4$" diameter circle and no part will fall outside a 5" diameter circle. Both circles are centered on lamp axis.

(77) At approximately 3" from end of bulb, beam will completely cover a $3/4$" diameter circle and no part will fall outside a 3" diameter circle. Both circles are centered on lamp axis.

(78) GE Lamp No. 385 is not interchangeable with other manufacturers' lamp No. 385. GE Lamp No. 385 M.O.L. (maximum overall length) of approx. $13/16$" (.812) is standardized by A.N.S.I.

(79) Life tests are performed on A.C. voltage only. D.C. life will be approx. 50% of A.C.

(80) E.F.C. values will vary depending upon type of equipment used for measurement. Contact your GE representative for information.

(116) Life tests are performed on D.C. voltage only.

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GENERAL ELECTRIC MINIATURE LAMP PRODUCTS SALES AND DISTRIBUTION CENTERS

SALES OFFICES
(To Obtain Sales and Technical Information)

	Address	ZIP	Telephone
ANCHORAGE, ALASKA	1701 East 1st Avenue	99501	272-1211
ATLANTA, GA.	120 Ottley Drive, N.E.—P.O. Box 13917	30324	897-6390
BALTIMORE, MD.	1401 Parker Rd. Mail: P.O. Box 7427, Baltimore, Md.	21227	242-5700
BOSTON, MASS.	50 Industrial Place, Newton Upper Falls, Mass.	02164	332-6200
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50 Industrial Place, Newton Upper Falls, Mass.	02164	332-6200
1001 Tuckaseegee Rd.	28208	376-6585
4201 So. Pulaski Rd.	60632	254-6161
49 Central Ave.	45202	559-3600
1705 Noble Rd.	44112	266-4404
Cleveland Distr. Ctr., 1705 Noble Rd., Cleveland Ohio	44112	266-4404
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EML: 1, 2, 8, 9, 11, 12, 13, 14, 15, 16, 22, 28, 29, 33, 34, 35, 36, 37

Revised 5/76
3-6016
Supersedes Feb., 1975 Issue